

ABSTRACT OF THE DISCLOSURE

A polymer actuator is provided. The polymer actuator includes a plurality of gel/electrode complexes arranged in an electrolytic solution, wherein the gel/electrode complex is composed of a polymeric hydrogel containing acidic or basic functional groups and electrodes placed in the polymeric hydrogel, such that it changes in volume upon application of a voltage across said electrodes. The polymer actuator expands and contracts in the linear direction without curved deformation. The polymer actuator is light in weight and is capable of control with a low voltage.